

THE PROMISE OF APPRENTICESHIPS IN NEW YORK

Center *for an* Urban Future

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Introduction

Apprenticeships are gaining ground in the United States. Built to align the skills of workers with the needs of employers, the apprenticeship model is a powerful tool for economic mobility—opening career paths to people with limited education by allowing them to earn a salary and learn a profession at the same time. In the U.S., research indicates that registered apprentices out-earn their peers by more than \$300,000 over the course of their careers.¹ And apprenticeships are a valuable model for growing industries like healthcare, finance, and tech with a significant number of middle-skills jobs.

But while President Trump has embraced apprenticeships in recent years and states from Colorado to South Carolina have implemented ambitious initiatives to expand this high-impact career pathway model, apprenticeships are still a relatively untapped opportunity in New York.

There have been promising steps in the right direction during the past year. Governor Cuomo recently announced a new state investment to create pre-apprenticeship and registered apprenticeship positions in advanced manufacturing and healthcare over the next four to six years. Meanwhile, in New York City, Mayor de Blasio launched ApprenticeNYC, which aims to establish 450 apprenticeships in the industrial, health, and tech industries over the next three years.

But New York has a significant opportunity to go further down this path. New York has just under 17,000 apprenticeships, a surprisingly small number for a state with a labor force of 9.6 million. Though the third most populous state, New York ranks seventh in the number of registered apprenticeships, 12th in the number of apprentice programs, and 45th in the rate of growth in apprenticeships since 2011. In New York City, apprenticeships appear to be even rarer. Although the city accounts for 48 percent of the private sector jobs in the state and 43 percent of the state's population, only 11.9 percent of the registered apprenticeship programs statewide are in the five boroughs. Meanwhile, only a handful of apprenticeship programs exist in the city's fast-growing fields like the tech sector, healthcare, hospitality, and the finance industries—serving a few dozen employees annually at most.

Expanding apprenticeships should be a priority for New York City and State, with clear benefits for workers and employers. At a time when New York's economy is booming but far too many New Yorkers remain stuck in low-wage jobs, apprenticeships provide one of the most reliable springboards into the middle class. They are a proven model for vaulting individuals from low- and moderate-income backgrounds into well-paying jobs and giving them skills and credentials that set them up for long-term career success.

Moreover, at a time when far too few New Yorkers from low-income backgrounds have managed to access well-paying jobs in growing industries like the tech sector, apprenticeships offer a model that works, helping individuals develop the skills and relationships they need to succeed. The model also provides employers with an effective way to diversify their workforces, while cultivating new employees who meet their specific hiring needs.

As we detail in this report, there are a number of reasons why apprenticeships have been relatively slow to get off the ground in New York—from an overly cumbersome state process for registering new apprenticeship programs to a paucity of employers that have embraced this model, particularly outside of the building trades. But as several other states have shown in recent years, these hurdles can be overcome. This report details some of these best practices, and sets forth several achievable steps for state and local policymakers, business leaders, and workforce development practitioners to take to help New York City and State deliver on the significant promise of apprenticeships.

This report was made possible through generous support from **Barclays**.

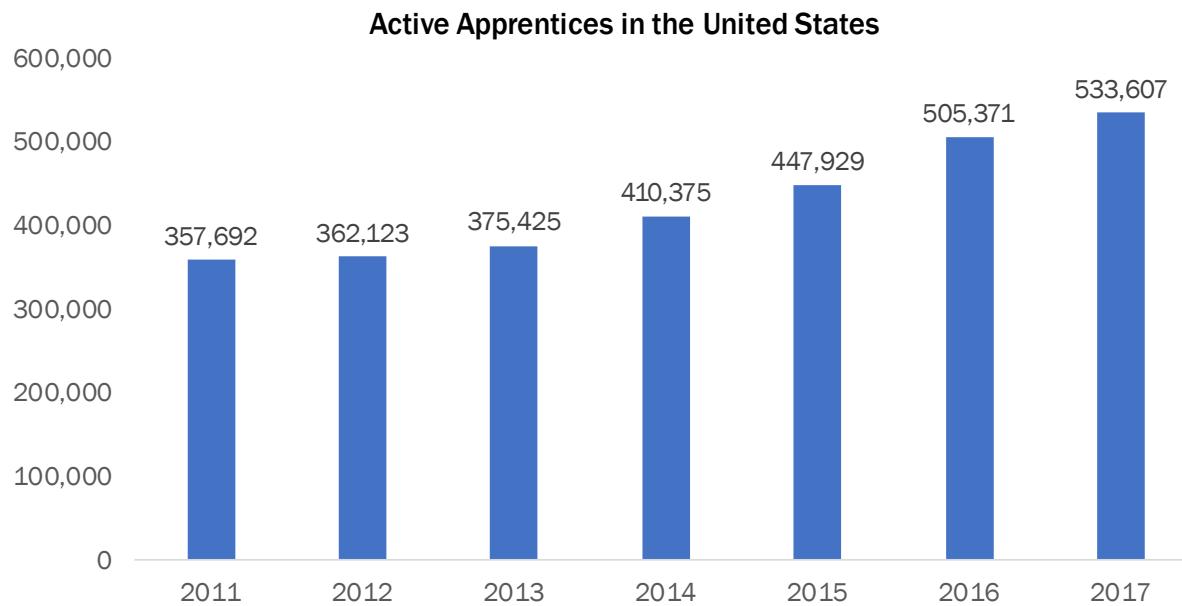
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This policy brief provides a detailed analysis of the opportunity to expand apprenticeship programs in New York City and State. Funded by Barclays, the report offers a new level of detail about the current landscape for apprenticeship programs in New York and outlines both the opportunities and challenges to expanding the model. Based on an extensive data analysis and interviews with more than 30 apprenticeship experts in New York and around the nation, the study also shines a light on some of the most promising apprenticeship initiatives in the U.S. and outlines several achievable recommendations for boosting apprenticeships in the city and state.

The American apprenticeship

An apprentice is a student-employee hybrid, receiving on-the-job training from their employer complemented by classroom instruction relevant to their industry. An apprenticeship usually lasts between one and five years, with a gradually increasing salary, after which the apprentice transitions to a regular full-time position. “Employers get to train people in the skills that they actually need for the job, and people earn while they learn,” says Esta Bigler, director of the Labor and Employment Law Program at Cornell University’s ILR School and chairperson of New York State’s Apprenticeship and Training Council, which reviews all applications for apprenticeship programs and recommends them for state approval. “The model of learning and earning at the same time is very, very valuable.”

Apprenticeship has long been integrated into the economies of European countries like Germany, where 60 percent of young people held an apprenticeship in 2014, and Switzerland, where 70 percent of teenagers participate in an apprenticeship. But the apprenticeship model is sparking increasing interest in the United States. In 2014, a study in Washington State found that registered apprenticeships had a greater impact on future salaries than any of the other ten workforce training programs assessed. According to the U.S. Department of Labor, 91 percent of apprentices transition straight to full-time work, earning an average starting wage of more than \$60,000. The verdict is clear, says Robert Lerman, an Urban Institute fellow and former economist for the Congressional Joint Economic Committee and the U.S. Department of Labor: “Apprenticeship beats all other training programs by a mile.”



Source: Center for an Urban Future analysis of 2011–2017 United States Department of Labor Data. Data by fiscal year.

Expanding the apprenticeship model has become a rare issue with bipartisan support. With backing from the Obama administration, including federal grants for state apprenticeship initiatives, the number of apprentices nationally surpassed 505,000 in 2016 from 375,000 in 2013. In 2017, it

hit 533,607. An executive order signed by President Trump last June doubled federal funding for apprenticeship programs to almost \$200 million per year, while setting a goal to bring the number of apprentices in the U.S. to five million. More recently, a Trump administration task force on apprenticeship published a report with its own recommendations to expand apprenticeship programs, including pushing for industry-recognized alternatives to registered models. In America, where apprenticeships have mostly been confined to the building trades—unlike Europe, where apprenticeships span most major industries—apprenticeship programs are now emerging in fields like healthcare, cybersecurity, hospitality, and the creative industries. Employers that have started apprenticeship programs or apprenticeship-like models in the U.S. include giants like Accenture, JPMorgan Chase, Amazon, Barclays, and CVS.

The opportunity for apprenticeship in New York

New York's employers need reliable ways to find employees prepared for the demands of their workplaces—from advanced manufacturing companies struggling to find qualified workers, to tech companies whose employees must keep up with the quickly evolving needs of the industry, to hospitals and other healthcare employers confronting a surge in demand for their services while large numbers of workers head toward retirement. For employers, apprenticeships offer several advantages: a new pipeline of well-trained workers, higher retention rates, increased productivity, access to more diverse job candidates, and the opportunity to pay their new employees according to skill level while training them in the exact competencies their jobs require.

"There are benefits to apprenticeships on both sides, with businesses seeing greater retention rates, more loyal employees, and skilled workers that fit their exact demands," says Sarah Conte, director of business solutions at Per Scholas in New York, who leads a team that's developing apprenticeships in the tech sector. "On the worker side, they have the backing of their companies from start to finish, they have a clear pathway for onboarding, and they know where they're going—that's incredibly helpful for somebody who's starting out in a new career or new sector."

In New York City, where record-low unemployment is spurring strong competition for trained workers, apprenticeships can foster especially loyal relationships between workers and their employers. "JetBlue's apprenticeship program ties directly to our mission by giving workers the skills that will translate to high-paying jobs and future careers," says Debra Cartagena, former general manager of talent acquisition at JetBlue Airways, which runs an apprenticeship program for aircraft technicians. "The vast majority of apprentices convert into full-time staff, and we've seen retention rates that far surpass the other technical groups."

Despite growing interest from other industries, most of the state's apprenticeship programs today are in the building trades: occupations like carpenters, electricians, ironworkers, plumbers, and bricklayers. These jobs have long been a source of well-paying work accessible to New Yorkers without a college degree, and demand continues to rise. The New York State Department of Labor (NYSDOL) projects that the skilled trades will add more than 116,000 jobs between 2014 and 2024—a 17 percent increase—and apprenticeships have the potential to fill many of these positions.

Although apprenticeships have already proven effective at closing skills gaps in the building trades and manufacturing, the model can prepare workers for any number of jobs considered middle-skilled: occupations that require some amount of industry-specific training and sometimes a postsecondary credential, but less than a bachelor's degree. "When you think of apprenticeship, you don't typically think of IT, or drones, or nanotechnology, or emerging industries like that," says Nate Crossett, the project director of one of New York's two American Apprenticeship Initiative (AAI) grants awarded by the federal government in 2015. "And those are key, because those are going to be a lot of jobs in the future."

New York has a growing number of middle-skills jobs—ranging from software developer to network administrator, medical technician to salesperson, veterinary assistant to hotel manager—but a significant number of New Yorkers lack the skills training and postsecondary credentials necessary to obtain them. In New York City, approximately 46 percent of residents over 25 haven't had the right training to qualify for a middle-skills job. Statewide, middle-skills jobs account for 50 percent of New York's labor market, but only 38 percent of the state's workers are trained to that level.

Registered and unregistered apprenticeship

Today, most of New York’s apprenticeships are registered with the state. Registered apprenticeships are based on a government-approved contract between apprentice and employer, meant to protect the apprentice by mandating specific investments from the employer and to establish common competencies for a specific job title. Registered apprenticeships also benefit workers by allowing them to earn an industry-recognized credential, making them attractive candidates for many employers in their field.

Registering a new apprenticeship program in New York can be a laborious and cumbersome process, especially for industries and occupations that aren’t already part of the state’s apprenticeship system. In order to develop an entirely new program, employers must contact the Department of Labor for guidance; determine a set of core competencies for the new occupation; find an educational partner and coordinate related classroom instruction, which is approved by the Department of Education; and build an on-the-job training program to supplement the classroom learning. Registered apprenticeships typically require a minimum of 2,000 hours of on-the-job training and 144 hours of related instruction to be approved.

Applications for new apprenticeship programs are reviewed by New York’s Apprenticeship and Training Council a few times per year, and are either recommended for approval or rejected. (While some states register apprenticeships through a federally run apprenticeship office, New York is one of 25 states plus Washington, DC, that registers new programs through a state apprenticeship agency.)

For many employers outside the building trades who are new to the model, the freedom (and lack of bureaucracy) of unregistered apprenticeship carries significant appeal. Much of the burgeoning interest among employers in tech, for example, is focused on developing high-quality unregistered programs and apprenticeship-like models. Creators of unregistered programs often say they’re avoiding a state registration process that has a reputation for being cumbersome and unwelcoming toward new industries. Accustomed to operating at a fast pace and changing direction on the fly, tech employers may find that waiting months for programs and related instruction to be approved is a major deterrent. Unregistered programs allow employers the flexibility to continually tweak and update their curricula as needs shift and technology evolves.

“I’m not sure that the registration process that currently exists is serving businesses or apprentices very well,” says Sarah Conte of Per Scholas. “In areas like technology, there are currently only a handful of registered apprenticeship options that might not fit what businesses are looking for right now and certainly aren’t going to fit with what they’re looking for one or two years from now.”

Some employers are also hesitant to go through the Department of Labor to help tackle a workforce challenge, and are either unswayed by or unfamiliar with the Empire State Apprenticeship Tax Credit for new apprenticeships. Registering new occupations takes significantly more work and time than creating a new apprenticeship program for an occupation that is already registered—yet another factor that discourages apprenticeship from expanding into new fields.

As a result, almost all of the emerging interest around the apprenticeship model in industries outside the building trades is focused on unregistered programs, especially in New York City. To realize the full potential of apprenticeship in New York, both registered and high-quality unregistered programs should be part of the solution.

For many of the seven million adult New Yorkers without a postsecondary degree, going back to college remains an enormous barrier—especially if they need to work full-time or care for dependents. As a result, nearly 30 percent of the state’s working adults are employed in low-wage positions.² An apprenticeship offers the chance to become qualified for a profession while earning a salary from the very beginning: Registered apprenticeships pay a starting wage of \$15 that increases over time, and they lead directly to jobs with average starting salaries of over \$60,000 per year. While internships can also provide valuable work experience and training, the combination of paid training and a clear path to full-time employment is a unique advantage of the apprenticeship model.

New York also has a significant opportunity to leverage the apprenticeship model as a means of connecting more young people with the fast-growing jobs of the future. This will require leadership from both government and the business community, and a commitment to developing work-based learning opportunities for far more youth and young adults statewide.

“Apprenticeship could be huge for New York,” says Martha Ponge, director of apprenticeship at the Manufacturers Association of Central New York. “I think it’s going to become as important to nontraditional fields as it is to manufacturing. It’s going to be bigger than we think.”

By combining training and steady pay, apprenticeships are particularly valuable for people with significant barriers to economic opportunity—including low household income and limited educational attainment—who might otherwise struggle to earn a living wage, not to mention find a career that matches their interests and offers a path to advancement. Apprenticeships can usher more people of color, immigrants, and women into industries like finance and tech that are still predominantly white and male—a prospect that more employers are beginning to value. “It’s a good business move to continue diversifying our workforce,” says Jessica Jaser, who led the creation of an apprenticeship program at Betterment, a New York City-based start-up that’s grown to become the largest independent online financial advisor, with approximately 215 employees. For employers seeking diverse, qualified employees, apprenticeship may be the best strategy.

Apprenticeships can also bridge the gap between classroom and workplace, making education more relevant to jobseekers and employers alike. “One of the big challenges facing New York is that postsecondary systems struggle to respond to how quickly technology is moving,” says Barbara Chang, executive vice president of employer partnership for HERE to HERE, an organization working to produce talent that is responsive to employer skill demands, and the former executive director of the Mayor’s Office of Workforce Development. “Apprenticeship can help to marry the foundational skills that the postsecondary system is very good at developing with the changing nature of technology that can only be taught in the workplace.”

The goal is to merge the classroom experience with the hands-on world of work, says Samir Fayyaz, a workforce development consultant at the 1199SEIU Training and Employment Funds, who helped establish an apprenticeship program for community health workers at BronxCare Health System. “There’s very little gap between doing and learning. What apprentices are learning in the classroom is being reinforced on the job, and what they’re learning on the job is being reinforced in the classroom. And that’s really the promise of dual training, and it’s the promise of apprenticeship.”

The state of apprenticeships in New York

New York State had just 16,980 active apprenticeships in fiscal year 2017, the most recent year for which data is available from the U.S. Department of Labor. This is the seventh-highest number of any state, but a surprisingly small total for a state with a labor force of 9.6 million. California has twice the population of New York State, but almost four times the number of apprentices at 62,694. Ohio and Michigan have more apprenticeships than New York with half the population; Indiana has more with about a third of New York’s population; and South Carolina has a quarter of New York’s population, but more apprentices.

New York also trails most other states in the rate of growth. In fact, New York is 45th among all states in the percentage growth of apprenticeship programs between 2011 and 2017. South Carolina more than quintupled its apprenticeships between 2011 and 2017, and ten states expanded apprenticeships by at least 70 percent. In that same time span, the number of registered apprenticeships in New York increased by less than 2 percent, a lower growth rate than even Arkansas, Alaska, Vermont, and Guam.

New York is 12th among all states in the number of registered apprenticeship programs, putting it behind a number of smaller states, including Virginia, Connecticut, Indiana, Iowa, and New Jersey. Within the state, the Finger Lakes region—home to Rochester—has the most apprenticeship programs, with 122. Western New York is second among all regions, with 114 apprenticeship programs, followed by New York City (88), the Capital Region (85), Central New York (84), Long Island (75), Southern Tier (57), North Country (45), Mid-Hudson (44), and Mohawk Valley (25).

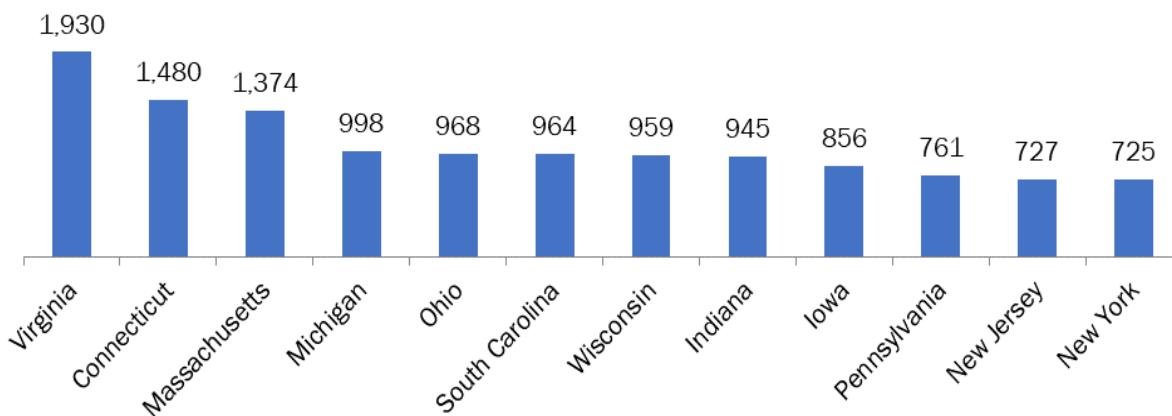
Statewide, about 96 percent of New York’s registered apprenticeship programs are in the building

trades or manufacturing, according to an analysis by the Center for an Urban Future—occupations like electricians, carpenters, plumbers, machinists, glaziers, and welders.

Top 10 States Ranked by Active Apprenticeships, FY 2017

	State	Apprenticeships, FY 2017	Apprenticeships, FY 2011	% growth, FY11–FY17
1	California	62,694	36,129	74%
2	Ohio	18,335	9,995	83%
3	Michigan	17,731	8,424	110%
4	South Carolina	17,609	3,198	451%
5	Texas	17,473	10,602	65%
6	Indiana	17,323	11,954	45%
7	New York	16,980	16,671	2%
8	Pennsylvania	16,662	11,938	40%
9	Virginia	15,429	14,415	7%
10	Washington	15,226	10,937	39%

States With the Most Active Apprentice Programs, 2017



Source: Center for an Urban Future analysis of 2011–2017 United States Department of Labor Data.

Fortunately, the state is already taking encouraging steps to expand apprenticeships. Earlier this year, Governor Cuomo announced a \$3 million investment to create up to 2,000 new pre-apprenticeship and registered apprenticeship positions in advanced manufacturing and healthcare over the next four to six years. This builds on several other important commitments, including the governor's 2016 pledge of \$2.6 million for expanding apprenticeships targeting at-risk youth. Moreover, the 2017–2018 state budget set aside \$50 million to fund one of the country's most generous employer tax credits meant to encourage apprenticeships in emerging industries: the Empire State Apprenticeship Tax Credit, which offers non-construction employers a progressively increasing tax credit per apprentice per year. And the 2018–2019 state budget includes \$175 million in funding for workforce development programs, including initiatives specifically focused on apprenticeship, and offers a combined \$5 million to SUNY and CUNY to expand apprenticeship programs for the third straight year.

Top 10 States Ranked by Percentage Growth in Apprenticeships, FY 2011–2017

	State	Apprenticeships, FY 2017	Apprenticeships, FY 2011	% growth, FY11–FY17
1	South Carolina	17,609	3,198	451%
2	Nebraska	9,580	2,863	235%
3	Michigan	17,731	8,424	110%
4	Iowa	9,393	4,743	98%
5	Massachusetts	11,154	5,974	87%
6	Ohio	18,335	9,995	83%
7	Arkansas	5,447	3,024	80%
8	Vermont	1,165	650	79%
9	California	62,694	36,129	74%
10	Georgia	8,109	4,732	71%
45	New York	16,980	16,671	2%

Source: Center for an Urban Future analysis of 2011–2017 United States Department of Labor Data.

A tax incentive for apprenticeship creators

The Empire State Apprenticeship Tax Credit, which went into effect in January 2018, applies to registered apprenticeships in in-demand occupations outside of construction. Employers receive a tax credit of \$2,000 per apprentice per year, with another \$500 if the apprentice received structured mentorship—an amount that increases by \$1,000 each year until a possible \$6,000 in year five of the apprenticeship. A higher tax credit is available if the apprentice is a disadvantaged youth, starting at \$5,000 per apprentice per year and reaching \$7,000 by year three.

Apprenticeships in New York City

New York City boasts more than 4.5 million jobs and is home to many of the largest companies in the world, but in our research, we struggled to identify more than a handful of active apprenticeship programs. In June 2018, just 94 of the state's 792 active and pending registered apprenticeship programs—or 11.9 percent—were in the five boroughs.

The vast majority of the city and state's registered apprenticeship programs are in the building trades. As of June 2018, 96 percent of registered apprenticeship programs listed on the New York State Department of Labor website—762 programs across the state—were in either the building trades (70 percent) or manufacturing (26 percent). In New York City, 85 percent of registered apprenticeship programs are in the building trades.³

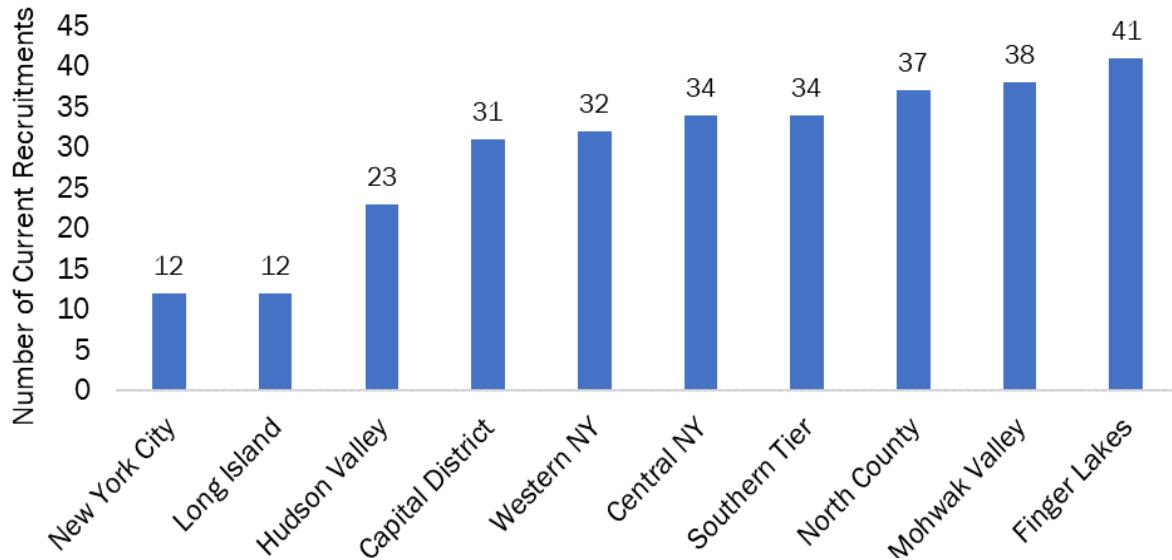
Of the registered apprenticeship programs in New York City listed as active on the NYSDOL's website as of June 2018, only ten were in industries outside of building and manufacturing, and five of them were sponsored by the same organization: the 1199 SEIU League Training & Upgrading Fund. The others include one "computer support technician" apprenticeship program and one "school safety agent" program. Among active programs, nearly a third (26 programs) were for electricians. The other occupations with the most apprenticeship programs were plumber (8), skilled construction craft laborer (6), carpenter (4), bricklayer/mason (3), and sheet metal worker (3).

There are also significant discrepancies among different regions of the state. An analysis of current recruitments for apprenticeships as of June 2018 posted on the New York State Department of Labor's website reveals that while there were 41 openings in the Finger Lakes region, there were just 12 each in New York City and on Long Island, suggesting that registered apprenticeship programs are less common downstate, even as those two regions account for well over half of all jobs statewide.

Just as in the rest of the state, New York City does have some unregistered apprenticeship and apprenticeship-like programs. For instance, Barclays offers a rigorous, unregistered program that prepares on average 20 apprentices every year for technology careers at the bank. (See box on page 10). Spotify has an apprenticeship-like program for engineers. There are other programs that straddle the line between a more traditional apprenticeship and a paid internship.

Apprenticeship Opportunities in New York State by Region

Registered apprenticeship programs with openings for new apprentices, as listed on the Department of Labor's website, June 2018



Source: Center for an Urban Future analysis of current recruitments for apprenticeships accessible through the New York State Department of Labor's website as of June 2018.

NYC's Open Apprenticeship Opportunities, June 2018

Boilermakers NE Area Local 5	High Rise Concrete Carpenters JATC of NYC
Carpenters JATC of NYC & Vicinity	LIUNA LU #731 Training Fund
Construction & General Building Laborers LU 79	Northeast Carpenters Apprenticeship Fund
Finishing Trades Institute of New York	Plumbers Local 1 JAC
Finishing Trades Institute of New York	Tile, Marble, Terrazzo Local 7 of NY & NJ
Finishing Trades Institute of New York	United Derrickman & Riggers Ironworkers LU 197

Source: Current recruitments for apprenticeships accessible through the New York State Department of Labor's website as of June 2018.

In addition, Mayor de Blasio recently launched a promising program to expand apprenticeships in the city. **ApprenticeNYC**, operated by New York City's Department of Small Business Services (SBS), is working directly with employers to develop new, unregistered apprenticeships in a variety of fields. The program plans to create 450 apprenticeships in industry, healthcare, and tech over the next three years, building on the city's Industry Partnerships to recruit employer partners. The initiative is still in its early stages; only the industrial sector apprenticeship has begun, with an 18-month machinist apprenticeship. SBS plans to launch apprenticeships in multiple occupations over the three-year period, with the goal of creating apprenticeship frameworks that employers find valuable enough to invest

in on their own. “Our objective is to have something take root in the world that will run without us,” says Michael Silver, a senior policy advisor at SBS. For the time being, the city will play a hands-on role—recruiting industry partners, helping them with the logistics of establishing their apprenticeships, and offering funding to offset the costs to employers.

Pathways into apprenticeship

For many working New Yorkers who could benefit the most from apprenticeship—including those without a high school diploma or with limited English proficiency—the basic requirements of an apprenticeship program may be out of reach. Developing and expanding pre-apprenticeships—and pre-pre-apprenticeships—can help more New Yorkers acquire essential literacy, math, and job readiness skills before connecting them with an apprenticeship. In addition, youth apprenticeships offer a modified apprenticeship model for 16- to 24-year-olds, affording younger participants the opportunity to earn a high school diploma or equivalency and potentially a postsecondary credential while also receiving paid training in an occupation.

A sample of New York’s apprenticeship programs

New York’s apprenticeships have historically been in the building trades and often organized by unions, like the rigorous five-year electrician apprenticeship run by the **International Brotherhood of Electrical Workers Local Union 3** and the National Electrical Contractors Association of New York City, registered with the New York State Department of Labor in 1943. The program requires 640 hours of classroom instruction (covering applied mathematics, circuitry, and blueprint reading, among other topics) and at least 8,000 hours of on-the-job training.

Manufacturing and advanced manufacturing companies in New York have also turned to apprenticeship as a way to fill a growing deficit in skilled employees. **The Manufacturers Association of Central New York (MACNY)** has been particularly effective in helping companies set up registered apprenticeships by playing an intermediary role between employers and government. Funded by an appropriation in the state budget that began in 2016, MACNY creates apprenticeships that synthesize the needs of small and medium-sized manufacturers.

MACNY has approval from the Department of Labor to act as an apprenticeship sponsor (the role, often filled by an employer, with ultimate responsibility for a given program) for programs in five in-demand occupations: toolmaker, welder, CNC machinist, electronics technician, and maintenance mechanic. The organization oversees the creation of common competencies, partners with community colleges and other training providers to create a related instruction curriculum, and fills out the paperwork for registration on behalf of the employer. That minimizes the employer’s workload, allowing them to plug into an existing apprenticeship framework instead of trying to build one from scratch.

New York State has two programs funded by the U.S. Department of Labor’s American Apprenticeship Initiative (AAI) five-year grants, awarded to states in 2015. **United Way of Buffalo and Erie County** received \$2.9 million to help employers create and expand advanced manufacturing apprenticeships in Western New York. The nonprofit is working with 22 companies (such as Ford), including one intermediary representing 14 companies, to create 300 apprenticeships in occupations like CNC machinist, electrician, and welder. Bringing employers on board was a challenge at first, says Holly Hutchinson, project director of the AAI grant at United Way. The initial outreach required a combination of cold phone calls; sit-down meetings; mobilizing United Way’s previous relationships with unions, local manufacturers, and manufacturing associations; partnering with workforce development organizations; and support from the state Department of Labor. “Now people call us,” says Hutchinson.

The **Workforce Development Board of Herkimer, Madison & Oneida Counties** in Utica was funded to create apprenticeships and pre-apprenticeships (modified apprenticeship programs that bridge into the full apprenticeship model) in Central New York. Last summer, the board partnered with cybersecurity employers, the Air Force Research Lab in Rome, the Griffiss Institute, and the state Department of Labor to develop a one-year software developer apprenticeship—New York’s first

The Barclays-Per Scholas apprenticeship

One of the more promising apprenticeship programs developed in New York City in recent years—and one of the only such programs that helps prepare New Yorkers for technology careers—is Barclays’ technology apprenticeship program. Barclays, the UK-based bank, developed its apprenticeship program a few years ago in partnership with Per Scholas, a Bronx-based non-profit that is widely renowned for offering high-quality training programs that prepare New Yorkers from low-income backgrounds for careers in technology.

Looking to address its talent needs in New York and increase the diversity of its local workforce, Barclays now hires 20 Per Scholas graduates as apprentices each year—mostly graduates of a 16-week cybersecurity course that Per Scholas had previously developed in collaboration with Barclays. Barclays apprentices work full-time at a starting salary an average of three times their pre-program income, and become regular employees after two years. During the two years of the program, apprentices are paired with a mentor at the company. They shadow the mentor during the program, allowing them to learn on the job and soak in the Barclays culture.

Since the program began, Barclays has hired over 20 former apprentices as regular employees. Former apprentices now work in a range of departments at the bank, including IT support, cybersecurity, data analysis, and web development. One of them is LaQuana Chisolm, who now works as an analyst providing IT support to hundreds of bank employees on the trading floor at Barclays’ New York office. Chisolm was always interested in solving problems, but she didn’t have deep technology skills or a college degree when she enrolled in a 16-week tech program at Per Scholas. Four months later, she had the skills that put her in high demand. After graduating, the single mom had multiple job opportunities, but ultimately saw the Barclays apprenticeship as the best path to a career. “I took that leap of faith to go where I had never been before, into corporate America, and to grow in ways that would benefit me and the company,” says Chisolm.

For Dashiell Lumas, a Per Scholas graduate and current apprentice at Barclays, the apprenticeship offered a chance to break into the tech industry. Lumas took a five-week immersive web development program at Per Scholas that bridged into a three-month boot camp in web development at General Assembly. He was surprised when a Per Scholas staffer suggested he apply to the apprenticeship at Barclays. “I didn’t really think that would be accessible to me. I would think that my lack of experience would get in the way,” says Lumas. But he was hired as an apprentice in development operations in January 2018, and now works in Barclays’ technology department.

Entering tech was an unexpected career change for Lumas, who had no coding experience before Per Scholas. “Now I love it, I’m really passionate about it,” he says. “I’ve learned things about working in this industry I never thought would be possible.”

Per Scholas has worked to build career pathways into tech for over 20 years, creating an arsenal of well-regarded training programs, but the organization sees particular promise in apprenticeship. “For graduates who obtain a Barclays apprenticeship, their career trajectory seems to be accelerated,” says Sarah Conte of Per Scholas. “It shortens the career ladder for them.” She points to the wage increases and opportunity for advancement that come with apprenticeship.

On Barclays’ end, the apprenticeship offers a way to connect with more diverse potential employees who have already received training aligned with the company’s needs. As industries like tech and finance begin to address the lack of representation within their fields, apprenticeships are a way to build a more diverse workforce: Almost all Barclays-Per Scholas apprentices are people of color, and more than 40 percent are women. Additionally, the apprentices typically stay at the company, reducing turnover and making Barclays’ upfront investment worthwhile.

“The key is the talent pipeline,” says Deborah Goldfarb, global head of citizenship for Barclays International. “As companies look for a pipeline of diverse talent, apprenticeships are a way to hire talented people and also people who are incredibly loyal to the firm. They stay longer.”

And Goldfarb says that the partnership with Per Scholas has been crucial. “Colleagues in our technology department co-created the program with Per Scholas,” she says. “It was a significant investment of their time to build out a 16-week full-time curriculum. When apprentices showed up at Barclays, they were ready to work and they had the relevant skills.”

The apprenticeship is open to graduates of Per Scholas’s training program, regardless of

whether they have pursued education at the postsecondary level. Most—55 percent—only have a high school diploma. Per Scholas and Barclays argue that some of the fastest-growing jobs in tech don't require a typical four-year college degree, and that tech and finance companies should place less emphasis on degrees and more on skills-building. Per Scholas is working to implement its apprenticeship model with other employer partners, mainly financial firms, as part of a developing initiative called ApprenTech.

registered apprenticeship in information technology. These IT apprenticeships are a minority, says project director Nate Crossett, amounting to about 10 percent of the project's apprenticeships so far while the rest are in advanced manufacturing. "Manufacturing is still a big component of the Central New York region, and we want to keep that as strong and as vibrant as possible," says Crossett.

The board initially hoped to create apprenticeships in nanotechnology and drones, but demand for those jobs isn't yet high enough in the region. With continued input from cybersecurity employers, the board is exploring the potential to create other IT and cybersecurity apprenticeships, including data analyst, network security administrator, and computer support technician.

One of New York's rare apprenticeships in healthcare is the **Community Health Worker Apprenticeship Program**, a collaboration between the New York Alliance for Careers in Healthcare, 1199SEIU Training and Employment Funds, LaGuardia Community College, and BronxCare Health System (formerly Bronx-Lebanon Hospital), with the first cohort of apprentices funded by SBS. As liaisons between the hospital and the surrounding community, community health workers interface with a range of departments in the hospital to help identify local health-related concerns and barriers to accessing medical resources. The six-month program leads to a community health worker staff position at BronxCare.

Twelve of the first 15 apprentices already worked at the hospital, in departments like housekeeping, facilities, and food service. "We recognized that they knew our system and the community, and they were looking for career advancement. And they opened up entry-level positions, so the domino effect was fantastic," says Dr. Douglas Reich, chair of the Department of Family Medicine at BronxCare Health System. "It kind of caught on fire. People now approach us when we're walking around the hospital saying 'Hey, let us know when you're going to start recruiting.'"

Reich says the hospital's relationship with CUNY, the union, and the city have strengthened because of their work together on the apprenticeship. "Even though we were good working partners before, we are better [now]," he says. "It's brought organizations to work even closer together on even more complex problems." 1199SEIU is working to bring apprenticeship to other hospitals, in additional occupations—including a medical coding apprenticeship whose first cohort is scheduled to begin at BronxCare and Mount Sinai in the fall, after completing a two-year online course offered by CUNY.

Spotify launched a new apprenticeship-like program in June 2018, becoming one of the city's first major tech employers to do so. The 16-week NYC Technology Fellowship Program, created in partnership with the Tech Talent Pipeline, is intended to provide entry-level engineers from diverse backgrounds with an opportunity to work at Spotify while receiving mentoring and professional development from a wide array of current employees. Although not all participants will be hired, the intent of the program is to convert top performers to full-time employees. The city recently announced that **Foursquare**, **MediaMath**, **StackOverflow**, and **Betterment** are also committing to launching or expanding associate engineer programs. A similar program at **Blue Apron**, the meal-kit company, trains warehouse workers for engineering jobs through a partnership with Coalition for Queens.

Obstacles to expanding apprenticeship

New York faces several core challenges to increasing the number apprenticeships statewide and expanding their use in new industries:

There is limited awareness of the apprenticeship model among New York employers. The United States still lacks a culture around apprenticeship, which hasn't historically been integrated into the country's

economy as it has in Europe. A significant challenge for New York is to raise the visibility of the apprenticeship model, and address most employers' basic lack of knowledge about apprenticeships.

Employers tend to be unclear about the core tenets of apprenticeship: That it combines paid on-the-job training and subsidized classroom instruction, and that the apprentice is an employee who assumes a fully paid, full-time position once the apprenticeship ends. There is also a basic lack of clarity around the benefits of apprenticeship for employers—including higher worker retention and productivity, the opportunity to train employees to fit their current needs and pay them according to skill level, and the power of apprenticeship programs to help build a more diverse workforce.

Few employers are aware that they can choose whether to create a state-registered or unregistered program, and why they would choose one option over the other. “Virtually every company I visit doesn’t understand what a registered apprenticeship is,” says Lisa Futterman, New York City regional director at the Workforce Development Institute—much less how to go about setting up an apprenticeship, registered or unregistered, even if they wanted to.

Employers outside of the building trades often don’t even consider apprenticeship a model applicable to their industry. Apprenticeship in New York is often still seen as applying only to a limited number of union-centric professions in construction (and to a lesser extent, manufacturing). Employers don’t yet recognize apprenticeship as a model that can prepare workers for any middle-skills job, without the need for a bachelor’s degree—or recognize that many of New York’s growing middle-skills jobs are in industries like tech, finance, healthcare, IT, and the creative economy.

Lack of employer engagement is slowing the growth of apprenticeships, particularly beyond the building trades. For apprenticeships to grow significantly statewide, more employers need to be introduced to the model and understand its value for their businesses. But few employers today are aware of the benefits of apprenticeship, in part because New York does very little outreach. Given the upfront costs in terms of both time and money that establishing an apprenticeship requires, companies need help and encouragement if they’re going to take that leap—especially in industries where employers don’t see many of their peers using apprenticeships.

“The problem that New York State needs to solve is getting more employers excited about the model,” says Melinda Mack, executive director of the New York Association of Employment and Training Professionals (NYATEP). “Right now, many employers don’t see the value proposition for supporting apprenticeship as part of their recruitment and retention strategy.” Apprenticeship can directly benefit employers through higher retention and productivity, training tailored to their specific needs, and access to a more diverse workforce. But for employers in industries that haven’t yet turned to apprenticeship, these benefits are not always clear. Mack says that government will need to do more to make the case to employers that apprenticeship can benefit their businesses.

New York isn’t unusual in its difficulty breaking the inertia around apprenticeship, but the state’s outreach and employer engagement efforts around apprenticeship, while improving, are limited. “We are the only ones actually talking about apprenticeship in our area in a way that’s kind of promotional,” says Holly Hutchinson of United Way of Buffalo and Erie County.

At Betterment, an online investment company based in New York City that recently started a small apprenticeship program, the program coordinators weren’t aware that the option to register with the state existed. Instead, they looked to Spotify, which they knew had invested in apprenticeship-like models. But without significantly expanded employer outreach efforts for both registered and unregistered programs, most employers will continue to be unaware that the apprenticeship model could work for them.

The process of registering an apprenticeship program is daunting to employers. For employers, the challenge of registering an apprenticeship program is twofold. The first obstacle is simply understanding what to do: there is no clear, publicly available explanation of how to register an apprenticeship in New York, with specific steps and a timeframe for each one. The second obstacle is navigating the logistics of creating an apprenticeship program, which almost always requires outside guidance—especially for a program in a new occupation.

Getting more employers interested in apprenticeship is difficult when information isn’t easily accessible. The Department of Labor’s lack of outreach to employers and its opaque apprenticeships

website—which provides almost no guidance or even basic information on the approval process—does little to encourage employers who haven’t registered an apprenticeship before. While the requirements for an apprenticeship program are posted on the NYSDOL website, it’s unclear how an employer would go about creating a program that meets them. In order to find out, employers considering creating a registered apprenticeship program are expected to call a phone number listed online and speak with a New York Department of Labor representative for guidance—a prospect that isn’t enticing for many businesses, who are unlikely to see the Department of Labor as a resource for their needs. What’s more, when an employer’s first exposure to the registration process is a list of requirements without clear explanations of how to fulfill them, they’re unlikely to pick up the phone and call a state office to find out more.

For most employers, registering a program isn’t possible without outside help from someone familiar with setting up apprenticeships. The paperwork involved in registering an apprenticeship isn’t extensive, but the logistics are challenging. Organizing classroom instruction in particular is beyond the experience of most employers. How does an employer find a related instruction provider and establish a partnership with them? How do they create a curriculum? If the apprenticeship is in a new occupation, without established competencies or a curriculum for related instruction that other employers have already used, an employer must build them from scratch—and then get involved with another state agency, the Department of Education, to get the education component approved. Finding other employees to mentor apprentices and scheduling issues are also cited as significant obstacles by both employers and intermediaries. No amount of streamlining can get around the reality that these logistics are challenging. For employers unfamiliar with the process, says Martha Ponge of MACNY, it invariably seems overwhelming.

One of New York’s only major apprenticeships in healthcare, the Community Health Worker apprenticeship at BronxCare Health System developed in partnership with 1199SEIU, the New York Alliance for Careers in Healthcare, and LaGuardia Community College, is registered federally and only recently received state approval. According to Samir Fayyaz of 1199SEIU, the state has been helpful throughout the process—but, “To put it bluntly, it’s much easier to register apprenticeships with the federal government than New York.”

Though plagued by its reputation, the state registration process has in fact improved in recent years. New York approved 73 new apprenticeship programs in fiscal year 2017, up from 33 in 2016 and 55 in 2015, including an increasing number of new occupations outside of the building trades. But those steps forward generally aren’t well publicized: A recently approved software developer apprentice program is still listed as pending approval on the state website, and people we spoke to in New York City’s tech scene were unaware it existed.

Registered apprenticeships aren’t appealing to many employers outside of the building trades. The flexibility of unregistered programs sometimes works better for industries outside of the building trades that haven’t traditionally used the apprenticeship model. Although earning a salary while receiving training is a core aspect of any apprenticeship, some of the requirements of registered apprenticeships may not be equally relevant to every industry.

For tech and creative companies, in particular, the requirement of approving specific competencies for each occupation and developing a course of instruction that’s been vetted by the Department of Education can be a major barrier to participation. In these fields, demonstrating coding or design skills and building a portfolio while gaining work experience has significant value for both employers and prospective apprentices, even if that falls short of the requirements for a registered apprenticeship.

New York City’s own ApprenticeNYC, a new apprenticeship initiative in the industrial, tech, and healthcare sectors run by the Department of Small Business Services, has chosen for the time being not to register its apprenticeships with the state. “We’ve heard that the process seems pretty onerous and difficult and confusing,” says SBS’s Michael Silver. “We have not exactly decided that we will not register these, but at least when we launch we will not have found value in what registration really means.”

A handful of large employers outside of the building trades have been proactive in creating alternative hiring structures—Spotify is a notable example from the tech world, investing in apprentices-

ship-like models and partnering with the city's Tech Talent Pipeline—but they remain outliers. And while New York City is home to the highest concentration of large corporations in the United States, hardly any of them offer apprenticeship programs. Drawing new industries to apprenticeship will require more flexibility to experiment with and replicate high-quality unregistered programs than New York State has shown in the past.

The logistics of creating an apprenticeship program pose unique barriers for small businesses. Starting a new apprenticeship program can be overwhelming for small businesses, which often don't have or can't devote an HR employee to navigating the process. That poses a particular challenge for New York City, where a large majority of all businesses are small, but is evident elsewhere in the state as well. "My husband desperately wanted to start an apprenticeship," says Esta Bigler of the Apprenticeship Council. "He has a hard time finding skilled mechanics. But he has a business to run, he doesn't have time to think about this. The problem is, if you leave it to an individual employer, they don't have the resources. And how do they do related instruction, and how do they put together a curriculum?"

One of the strengths of apprenticeship—that it creates partnerships between multiple stakeholders, including employers, industry associations, education providers like community colleges, other training providers, unions, government, nonprofits, and workforce development organizations—also means that creating new programs requires a good deal of coordination. It isn't realistic for most smaller employers to take on that coordinating role themselves; instead, they'll need an outside organization to guide them through the steps of creating an apprenticeship and serve as a resource throughout the process. But most of them aren't aware of the resources New York State offers to help set up registered apprenticeships, and the key role that both nonprofit intermediaries and city agencies can play in helping set up unregistered apprenticeships.

Apprenticeships have not traditionally been accessible to a diverse range of participants. New York also faces challenges when it comes to ensuring inclusive access to high-quality apprenticeship programs of all kinds. The vast majority of apprentices in the U.S. today are men: approximately 93 percent of new registered apprentices, according to data from Registered Apprenticeship Partners Information Data System. Research suggests that expanding apprenticeships into occupations where women are traditionally well represented—such as healthcare, hospitality, and the creative economy—can help to ensure greater participation among women in apprenticeship programs. But the most significant opportunity is to leverage the apprenticeship model itself to increase gender and racial equity in industries where women and people of color are underrepresented, including the building trades, tech, and finance. This will require a significant expansion of pre-apprenticeships—programs designed to give women, people of color, and other underrepresented populations the skills, relationships, and confidence needed to succeed in apprenticeship programs and beyond.

Best practices from other states

South Carolina: Integrate apprenticeship into the community college system.

Often regarded as the model state for apprenticeship, South Carolina has mobilized its college system to make it easier for employers to create new programs. South Carolina created Apprenticeship Carolina in 2007, a government organization housed in the state's technical colleges, with a staff (employed by the college and paid by the state) devoted to promoting apprenticeship. Supported by \$1 million in state funding per year, Apprenticeship Carolina does outreach about apprenticeship to employers, offers apprenticeship consultants to guide employers through the logistics, and connects employers with related instruction provided by the technical colleges. The result has been a more than five-fold increase in the number of registered apprenticeships since 2011. Offering employers a source of ready providers of related instruction has helped lower barriers to participation (though employers aren't required to use the state's technical colleges for the instruction component, 60 percent do). In addition, by organizing related instruction programs in multiple fields that can be used by any interested employer, South Carolina makes it significantly easier for companies to create apprenticeships. South Carolina now works with over 600 employers in the state. Apprenticeship is also incorporated into the state budget and a major part of its economic development strategy.

Colorado: *Develop a public-private partnership that engages employers and sets clear numerical goals.*

A public-private collaboration seeded with millions of dollars in start-up funds, Colorado's CareerWise program is among the most ambitious state models in the country. The program is run by an independent nonprofit, not by the state government, and includes a coalition of business leaders, industry groups, educational institutions, and funders. Fueled by a major commitment from the state's business community, Colorado's program is ensuring that the apprenticeships it creates are guided by the needs of local employers and lead to jobs in growing fields. Geared toward developing modern youth apprenticeships, CareerWise gives students hands-on experience in fields including information technology, hospitality, financial services, and advanced manufacturing. High school juniors and seniors devote part of the school day to on-the-job training, while earning debt-free credit toward college. Graduates are able to choose multiple pathways, either moving directly into a job or continuing on to a postsecondary credential. Colorado has modeled its apprenticeships strategy after Switzerland's, with state officials even traveling to Switzerland to more thoroughly understand its apprenticeship practices. As a nonprofit that coordinates with government but is independent of the state, CareerWise is appealing to employers—and the organization has the mission and budget to focus on apprenticeship full-time. Though in its early stages, CareerWise has set ambitious goals: It aims to create 20,000 apprenticeships in high-demand fields within the next decade.

Wisconsin: *Invest in youth apprenticeships and pre-apprenticeships as a bridge to full programs.*

Wisconsin established the first statewide youth apprenticeship in the United States—and since its start in 1991, the program has been a model for youth and pre-apprenticeship nationally. Though housed in the state department of workforce development, Wisconsin's youth apprenticeships are an unregistered, modified version of the traditional apprenticeship model—one or two-year programs meant for high school juniors and seniors—that often bridge into the state's registered apprenticeship programs for adults. In addition to helping employers concerned about an aging workforce, says Amy Phillip, a coordinator of Wisconsin's program, youth apprenticeships can counter disengagement in high school students by giving their in-school learning concrete relevance.

Wisconsin currently has eleven youth apprenticeship tracks serving over 4,000 students, with the largest programs in manufacturing; hospitality, lodging, and tourism; health science, and agriculture. The state is working on to expanding its newer apprenticeship tracks, including biotech and marketing. All apprenticeship tracks are developed to serve growing industries, and driven by constant back-and-forth with employers about their needs. Like South Carolina, Wisconsin uses its technical college system to help develop the related instruction curriculum.

Washington: *Get large tech employers on board.*

Washington's Department of Labor partnered with the Washington Technology Industry Association (WTIA) to create Apprenti, a tech apprenticeship program that received a federal American Apprenticeship Initiative grant in 2015. Apprenti serves tech giants like Amazon and Microsoft, in addition to several smaller companies. The program has been adept at identifying the needs of large employers in tech when it comes to apprenticeship: Apprenti convened tech companies to agree on standard competencies for in-demand middle-skills jobs, like software developer. Large tech employers say they need an apprenticeship program that's consistent across states, says Jennifer Carlson, executive director of WTIA. The program has expanded to five other states and is looking to bring its tech apprenticeships to New York.

California: *Subsidize the cost of related instruction.*

Perhaps the single most impactful step states can take to encourage registered apprenticeship is to subsidize the cost of related instruction, which otherwise would be paid by the employer. Having the state take on the cost of the classroom education component, at least in the first few years of a new apprenticeship program, can be a game-changer in industries that haven't traditionally used apprenticeship and are wary of the cost. It's a significant investment on the part of the state, but one that states including Washington and California have already made. California provides additional funds to community colleges that offer related instruction for apprenticeship programs to cover the cost of those courses.

Kentucky: Hire apprentices in state government.

Government can also act as an apprenticeship sponsor by developing programs that lead to careers in public service. Kentucky is leading the way with a major effort to hire apprentices in state and local government. The pilot program is designed to connect high school students with opportunities for paid apprenticeships in the state’s Department for Community Based Services, with a focus on students who may not have the opportunity to go to college or had considered a postsecondary credential to be out of reach. Apprentices are able to take dual credit courses while still in high school—earning college credit—and earn a paycheck while receiving on-the-job training.

Robert Lerman, an Urban Institute fellow who is currently working with the state of Kentucky on its apprenticeship strategy, believes New York could adopt a similar approach by using apprentices for many of the IT positions in government offices: “All of the IT positions could be done through apprenticeship, and it could be a more opportunity-enhancing approach. There’s no reason New York couldn’t do that if it wanted to.” Kentucky is also working with private industry to boost apprenticeships by focusing on other top-priority industries for new programs, including aerospace, transportation logistics, and healthcare.

Iowa: Create apprenticeship programs in prisons.

Iowa is among several states to partner with its Department of Corrections to incorporate registered apprenticeships into the prison system. Anamosa State Penitentiary and Kirkwood Community College piloted the program in 2014, which has since expanded to offer registered apprenticeships in plumbing, welding, cooking, maintenance repair, and other occupations. For inmates, apprenticeship is a chance to build skills in in-demand occupations that allow them to transition from prison to a job. Iowa’s apprenticeship coordinator believes the program helps maintain Iowa’s low rate of recidivism, which, at around 31 percent, is less than half of the national average.

Recommendations:

17 ideas for expanding apprenticeships in New York

New York has an enormous opportunity to greatly expand the use of apprenticeships in the years ahead. The city and state can take several practical steps to recruit more employers, lower existing barriers to apprenticeship, and support opportunities for innovation. Taken together, these steps can significantly boost the number of apprenticeships statewide, and encourage the model to expand to a wider range of industries.

Commit to doubling apprenticeships over the next five years in New York City and State.

Apprenticeships are among the most effective ways to jumpstart economic opportunity for more New Yorkers, and recent investments in apprenticeship from Governor Cuomo and Mayor de Blasio are a major step in the right direction. But these initiatives should be just the beginning of an ambitious effort by New York’s state and local governments to double the number of apprenticeships over the next five years. Given the size of New York’s economy and the growing hiring needs of employers statewide, New York should push to create quality apprenticeship programs, both registered and unregistered, at a much faster pace.

Create a statewide task force with industry leaders to grow apprenticeships in every region. For apprenticeships to reach their full potential, New York State and City will need to greatly increase the involvement of employers and improve how the state markets, develops, and implements new apprenticeship programs. To inform this approach, Governor Cuomo should convene a statewide task force on apprenticeship—comprising leaders from the private sector, educational institutions, workforce development providers, economic development officials, and nonprofit intermediaries—with the goal of developing recommendations to help double the number of apprentices over the next five years. In addition, the task force should focus on strategies to align apprenticeship with the needs of each region. Empire State Development’s ten regional offices and their corresponding regional councils can contribute to the work of the task force by helping to identify regional needs and conven-

ing local employers and industry groups around the goal of expanding apprenticeship.

Grow the number of apprenticeships beyond the building trades, in fields like tech, health-care, finance, and the creative economy. Like the rest of the country, New York State's apprenticeship programs have traditionally been in the building trades. But industries like healthcare, tech, and green energy are growing, and have significant numbers of middle-skills jobs that can be filled through apprenticeships. New York should make a long-term commitment to growing apprenticeships and expanding the model to additional industries. In the short-term, Governor Cuomo should launch a state initiative on apprenticeship that sets specific goals for expanding apprenticeship outside of the building trades, with the goal of adding at least 10,000 apprenticeships in other industries over the next five years. New York can help to achieve this by significantly expanding its efforts to market the Empire State Apprenticeship Tax Credit. In addition, New York City should develop its own ambitious goals around apprenticeships in growing fields, and make apprenticeships a much larger part of its efforts to engage employers on their workforce needs.

Apply for growing federal funding for state apprenticeship programs. Funding from the U.S. Department of Labor is increasingly available to states taking ambitious steps with apprenticeship. New York should aggressively pursue those federal resources, in addition to investing its own state funds into expanded apprenticeship programs.

Hire apprentices in government agencies. New York should invest in its own apprenticeship system by hiring apprentices in government, as states like Kentucky do—IT roles in state government offices, for instance, could be filled by apprentices. Both New York City and State should work with the CUNY and SUNY systems to develop new apprenticeships for entry-level, career-track occupations in government agencies, and set a goal of creating 1,000 apprenticeships in government over the next five years.

Expand pre-apprenticeship and youth apprenticeship programs. Apprenticeship programs have proven highly effective at connecting workers with lower levels of formal education to well-paying, career-track jobs. But for many working New Yorkers who could benefit the most from apprenticeship—including those without a high school diploma or with limited English proficiency—the basic requirements of an apprenticeship program may be out of reach. In order to prepare more working adults for apprenticeship programs, New York should scale up pre-apprenticeships and pre-pre-apprenticeships. These programs can help build the basic English and math skills required to gain entry to a full apprenticeship, which can open up this pathway to more people. New York should also work to ensure that more adult basic education courses connect with opportunities in pre-apprenticeships, and begin growing the number of pre-apprenticeships in fields beyond the building trades.

In addition, the city and state should follow the model laid out by Colorado's CareerWise program and commit to a major expansion of youth apprenticeships in partnership with business leaders, industry associations, and training organizations. In particular, the city and state Departments of Education should set a goal of making youth apprenticeships in a variety of industries available in every high school, including summer pre-apprenticeship programs that can connect to career-track apprenticeships after graduation.

Make New York City the leading hub of apprenticeship in the nation. Mayor de Blasio deserves credit for establishing ApprenticeNYC, but he should go well beyond that program's modest goals and chart a course for creating the nation's largest urban apprenticeship initiative. In a city with a labor force of more than 4 million and where a growing number of businesses are struggling to find employees with the skills they need, the mayor needs to aim higher than simply creating 450 apprenticeships through ApprenticeNYC. The de Blasio administration should at least double that goal. Expanding apprenticeships in a dramatic way would help the mayor accomplish his goal of reducing income inequality. New York City already has an ecosystem of industry associations, community-based organizations, training organizations, nonprofits, and other groups with connections to employers that can play an intermediary role if given the resources. The city should make grants available for these non-

government organizations to act as intermediaries and create their own registered and high-quality unregistered apprenticeships.

Expand ApprenticeNYC and move it outside government. The city should follow through on its goal to create 450 apprenticeships through ApprenticeNYC, and quickly move beyond manufacturing—the first industry targeted for apprenticeships—by developing new apprenticeships in tech and healthcare. The city should also expand its approach to include promising sectors outside the current scope, such as the creative economy and hospitality. The Department of Small Business Services is also right to recognize that the most effective long-term goal would be to bring this program outside of government. That should entail more than transferring responsibility for individual programs to intermediaries: The city should follow the lead of Colorado and make ApprenticeNYC a public-private partnership that can live and thrive outside of government.

Create a new office to lead the expansion of apprenticeship programs across New York State outside of the Department of Labor. In New York, housing the state’s apprenticeship efforts in the State Department of Labor has become a barrier to employer engagement. For the most part, businesses don’t see NYSDOL as an agency that has their interests at heart. That’s largely due to the fact that the department is charged with enforcing labor and wage laws, and not with economic development. Although New York absolutely needs an agency focused on labor enforcement, expanding apprenticeships across the state will be difficult without more employer buy-in. And that’s unlikely to happen at NYSDOL. The states that have had success with apprenticeship have expanded their approaches beyond the Department of Labor, creating new agencies or mobilizing existing ones to lead their apprenticeship efforts. Similarly, New York needs an apprenticeship agency that has strong connections to employers. The best option would be to follow the model of Colorado and create a public-private partnership designed to gain the trust of employers and focus full-time on apprenticeship. Under this model, the state would help establish an organization that is outside of government but funded with state support and includes representation from state agencies including the Labor Department and Empire State Development. Another option is for Empire State Development—the state’s economic development agency—to oversee apprenticeship programs in the state while also working with experienced apprenticeship staff from NYSDOL.

Prioritize apprenticeship in the new Office of Workforce Development. Even if New York moved responsibility for apprenticeship programs outside of NYSDOL, the state should take steps to better integrate apprenticeship programs into the state’s workforce development programming. Earlier this year, Governor Cuomo and the Legislature took a number of important steps to bolster workforce development in the state, including a new \$175 investment in workforce training programs and the creation of a new state office of workforce development. The new Office of Workforce Development, proposed as part of the governor’s recent workforce development plan, should make expanding apprenticeship one of its top priorities. Meanwhile, to ensure the best possible outcomes for New York’s workforce, the state’s new investment should include flexible funding to develop and market new apprenticeship programs. In state and city agencies, public-private partnerships, and among nonprofit workforce development providers, apprenticeships should be promoted as an important part of the workforce development toolkit.

Task Empire State Development and its Regional Economic Development Councils with building employer engagement around apprenticeship. No state entity is better suited to make the business case for apprenticeship than Empire State Development, New York’s economic development agency. Those efforts could be led by a handful of new apprenticeship staff placed in different regional offices, similar to South Carolina’s regional distribution of its apprenticeship experts, who would be tasked with marketing the apprenticeship model to employers and building apprenticeship programs into new economic development initiatives.

Make CUNY and SUNY the engine of New York’s apprenticeship system. CUNY and SUNY should become the anchor of the state’s apprenticeship system, actively seeking employer partners

and developing programs to ensure that many more students have access to apprenticeships while earning college credit. In particular, New York's community colleges can do much more to prepare students for careers by developing two-year associate's degrees and shorter-term credentials that double as the related instruction component of apprenticeship programs in growing fields. The state's public colleges are ideal providers of related instruction for apprentices: They can synthesize the needs of multiple employers into a shared curriculum, while guaranteeing the apprentice an academic credential. But few campuses are developing the close relationships with employers required to get these programs off the ground. CUNY and SUNY should establish a goal of bringing apprenticeships to every campus while cultivating relationships with employers in tech, finance, healthcare, hospitality, and the creative economy, among other growing industries.

CUNY and SUNY have both received state funding to create apprenticeships—in the case of SUNY, \$9 million over three years to create apprenticeships in advanced manufacturing and healthcare—but the state's public college system should play a larger role in New York's apprenticeship strategy. One obstacle is that current resources are largely tied to specific occupations and existing registered programs, which limits innovation. The state should empower CUNY and SUNY with the flexible funding required to take the lead in designing related instruction for apprenticeship programs in an array of fields, while collaborating with a broader range of employers.

Make it easier to create an apprenticeship program in New York State. A more approachable, better publicized registration process will ensure that employers aren't turning to unregistered apprenticeship solely to avoid state bureaucracy. Employers shouldn't have to call the Department of Labor to get the information they need. The website should include clear instructions for registering an apprenticeship, a timeline for the process, links to all necessary paperwork and other resources, and should explicitly appeal to non-building-trade employers. New York should also explore ways to streamline registration where possible: for instance, the Apprenticeship Council should consider holding some of its meetings to approve programs remotely. New York could also follow the lead of roughly half of all U.S. states, including Colorado and South Carolina, and simply use the federal registration process.

Support the development of high-quality unregistered programs. New York has room for many more high-quality unregistered apprenticeships, and some employers and intermediaries—especially in industries beyond the building trades—will prefer them for their speed and flexibility. The partnership developed between Per Scholas and Barclays demonstrates that unregistered programs can be rigorous, appealing to the employer and protective of the apprentice, and better suited for some industries than registered apprenticeship. New York State should encourage the growth and adaptation of these models to new industries and employers as another important pathway to increasing apprenticeship statewide.

Empower intermediaries to help employers create apprenticeships. Intermediaries can play a valuable role in expanding both registered and unregistered apprenticeships. For example, the Manufacturers Association of Central New York has enabled smaller manufacturers to register apprenticeships by using a shared framework; in New York City, Per Scholas is exploring taking its apprenticeship model with Barclays to other employers in finance. New York should encourage that kind of work by establishing a source of funding for organizations that already have the trust of employers to market, develop, and guide employers through the process of creating apprenticeship programs. In addition, a new bill introduced by Senator Tammy Baldwin, the Promoting Apprenticeships through Regional Training Networks for Employers' Required Skills Act of 2018, would provide grants to help intermediaries and other local partnerships build new apprenticeship programs and provide funds to support apprentices, and New York could benefit significantly from its passage.

Promote New York's promising Empire State Apprenticeship Tax Credit, while designing other incentives to encourage apprenticeship in new fields. The Empire State Apprenticeship Tax Credit is a strong step forward for New York, and the state should continue investing in efforts to market this tax credit to employers in new industries. However, the cost savings of the tax credit is

often more than offset by the expense of paying for the related instruction component of an apprenticeship program. In order to strengthen the appeal of this program—especially for smaller employers that may balk at the overall costs of setting up an apprenticeship—the state should consider subsidizing the cost of related instruction provided by community colleges or other quality training providers. This subsidy could be designed to target the first groups of employers to create apprenticeships in untested but fast-growing target industries for apprenticeship, like green energy and cybersecurity.

Create an Apprentice Support Fund to provide temporary assistance with costs that can be barriers for new apprentices. Transportation, childcare, technology costs, and other expenses can be prohibitive during the first stages of an apprenticeship. To ensure apprenticeship is accessible to New Yorkers from low-income backgrounds, the state should establish a source of temporary funding for intermediaries to help apprentices with those costs during the first year or two of apprenticeship, ensuring that more New Yorkers are able to succeed in an apprenticeship program.

Endnotes

1. Debbie Reed et al., “An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States,” Mathematica Policy Research, July 25, 2012, <https://www.mathematica-mpr.com/our-publications-and-findings/publications/an-effectiveness-assessment-and-costbenefit-analysis-of-registered-apprenticeship-in-10-states>. Graduates of registered apprenticeship programs earn an estimated \$301,533 more than their peers over their careers, including wages and benefits.
2. Analysis of 2017 Basic Monthly Current Population Statistics data by Population Reference Bureau for the Working Poor Families Project.
3. Center for an Urban Future analysis of all registered programs on the New York State Department of Labor’s Apprenticeship Sponsor List, June 2018.

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